We claim:

1. A tissue puncture closure assembly, comprising:

a tissue puncture closure device having a distal and a proximal end;

a vascular insertion sheath having a distal and a proximal end;

wherein the distal end of the insertion sheath comprises a tip portion that is stiffer than insertion sheath portions adjacent to the tip portion.

2. A tissue puncture closure assembly according to claim 1 wherein the tip portion comprises a concave fold.

3. A tissue puncture closure assembly according to claim 2 wherein the concave fold comprises no more than half of a circumference of the insertion sheath.

4. A tissue puncture closure assembly according to claim 1 wherein the stiffer tip portion comprises a wall thickness greater than a wall thickness of the insertion sheath adjacent to the tip portion.

5. A tissue puncture closure assembly according to claim 1 wherein the stiffer tip portion comprises a second layer of material.

6. A tissue puncture closure assembly according to claim 5 wherein the second layer of material is disposed substantially along a concave fold of the stiffer tip portion.

7. A tissue puncture closure assembly according to claim 5 wherein the second layer of material is disposed only along an edge of the stiffer tip portion.

8. A tissue puncture closure assembly according to claim 1 wherein the stiffer tip portion comprises at least one stiffening ridge.

9. A tissue puncture closure assembly according to claim 8 wherein the stiffer tip portion comprises at least two stiffening ridges.

10. A tissue puncture closure assembly according to claim 8 wherein the at least one stiffening ridge is arranged substantially orthogonal to a longitudinal axis of the insertion sheath.

11. A tissue puncture closure assembly according to claim 1 wherein the stiffer tip portion comprises a corrugated section.

12. A tissue puncture closure assembly according to claim 12 wherein the corrugated section is disposed transverse to a longitudinal axis of the insertion sheath.

13. A tissue puncture closure assembly according to claim 1 wherein the closure device comprises:

a filament extending from the proximal end of the closure device to the distal end of the closure device;

an anchor for insertion through a tissue wall puncture attached to the filament at the distal end of the closure device;

a sealing plug slidingly disposed about the filament at the distal end of the closure device.

14. A vascular insertion sheath, comprising:

a flexible tubular member having a longitudinal axis, a distal end, and a proximal end;

a hemostatic valve coupled to the proximal end of the tubular member;

a fold at the distal end of the tubular member, the fold comprising a higher stiffness coefficient than the tubular member.

15. A vascular insertion sheath according to claim 14, further comprising a layer of material over the fold to provide the higher stiffness coefficient.

16. A vascular insertion sheath according to claim 15 wherein the layer of material is placed only at an edge of the fold.

17. A vascular insertion sheath according to claim 14 wherein at least a portion of the fold comprises a thicker wall than the flexible tubular member.

18. A vascular insertion sheath according to claim 17 wherein only an edge of the fold comprises a thicker wall than the flexible tubular member.

19. A vascular insertion sheath according to claim 14, further comprising at least one stiffening ridge across the fold transverse to the longitudinal axis.

20. A vascular insertion sheath according to claim 14 wherein the fold is corrugated.

21. A vascular insertion sheath according to claim 20 wherein the corrugated fold is corrugated in a direction transverse to the longitudinal axis.

22. A method of reducing anchor shuttle in a tissue puncture closure assembly, comprising stiffening a tip portion of an insertion sheath receptive of a tissue puncture closure device.

23. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 22 wherein the stiffening further comprises increasing a wall thickness of the tip portion of the insertion sheath.

24. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 23, further comprising increasing the wall thickness of only a folded section of the tip portion.

25. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 23, further comprising increasing the wall thickness of only an edge of the tip portion.

26. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 22 wherein the stiffening further comprises applying a layer of material to the tip portion of the insertion sheath.

27. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 25 wherein the stiffening further comprises applying a layer of material only to a folded section of the tip portion of the insertion sheath.

28. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 22 wherein the stiffening further comprises corrugating the tip portion of the insertion sheath.

29. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 28 wherein the corrugating is done in a direction transverse to a longitudinal axis of the insertion sheath.

30. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 28 wherein the corrugating is done only in a folded section of the tip portion.

31. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 22 wherein the stiffening further comprises adding a ridge across the tip portion in a direction transverse to a longitudinal axis of the insertion sheath.

32. A method of reducing anchor shuttle in a tissue puncture closure assembly according to claim 31 wherein the stiffening comprises adding a ridge only across a folded section of the tip portion.

33. A method of making a vascular insertion sheath, comprising:

providing a flexible tubular member receptive of a puncture closure device;

tapering an end portion of the flexible tubular member;

folding a section of the end portion into a concave depression;

stiffening at least a portion of the concave depression.

34. A method of making a vascular insertion sheath according to claim 33 wherein the tapering comprises inserting the flexible tubular member into a heated die and reforming the end portion.

35. A method of making a vascular insertion sheath according to claim 33 wherein the folding further comprises inserting the flexible tubular member into a heated die and reforming the end portion.

36. A method of making a vascular insertion sheath according to claim 33 wherein the stiffening further comprises inserting the flexible tubular member into a heated die and reforming at least part of the end portion into a thicker wall or a corrugated section.

37. A method of making a vascular insertion sheath according to claim 36 wherein only a folded section or an edge of the folded section is reformed into the thicker wall or corrugated section.

38. A method of making a vascular insertion sheath according to claim 33 wherein the stiffening further comprises applying a layer of material to at least part of the end portion.

39. A method of making a vascular insertion sheath according to claim 33 wherein the stiffening further comprises adding a ridge across the end portion in a direction transverse to a longitudinal axis of the flexible tubular member.

40. A tissue puncture closure assembly, comprising:

a closure device for partial insertion into and sealing of an internal tissue wall puncture, the closure device comprising:

a carrier tube having an anchor nest at a distal end;

a filament extending through the carrier tube;

an anchor attached to the filament at the distal end of the carrier tube and seated in the anchor nest;

an insertion sheath receptive of the carrier tube of the closure device, the insertion sheath comprising:

a flexible tubular member having a longitudinal axis, a distal end, and a proximal end;

a hemostatic valve coupled to the proximal end of the tubular member;

a fold at the distal end of the tubular member, the fold comprising a higher stiffness coefficient than the tubular member.

41. A method of sealing a tissue puncture in an internal tissue wall accessible through a percutaneous incision, comprising:

providing a tissue puncture closure device comprising a carrier tube with a filament extending therethrough, the filament connected at a distal end of the carrier tube to an anchor, the anchor seated in a nest disposed in the carrier tube, the filament also connected to a sealing plug located proximal of the anchor for disposition and anchoring about the tissue puncture;

inserting the tissue puncture closure device through an insertion sheath having a stiffened tip portion into the percutaneous incision;

deploying the anchor into the tissue puncture;

withdrawing the closure device from the percutaneous incision;

tamping the sealing plug toward the anchor.